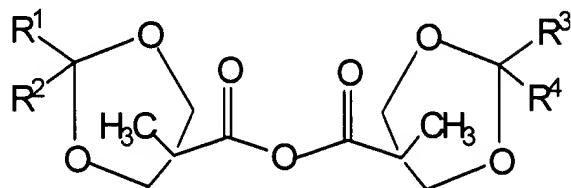


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (Withdrawn) An anhydride having the structure:



wherein,

R¹, R², R³, and R⁴ are members independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl.

Claim 2. (Withdrawn) The anhydride according to claim 1, wherein each of R¹, R², R³, and R⁴ is an independently selected C₁-C₆ unsubstituted alkyl group.

Claim 3. (Withdrawn) The anhydride according to claim 2, wherein said unsubstituted alkyl group is a member selected from the group consisting of methyl, ethyl and propyl.

Claim 4. (Withdrawn) The anhydride according to claim 1, wherein said anhydride is a solid, which is substantially free of coupling reagent derived side products.

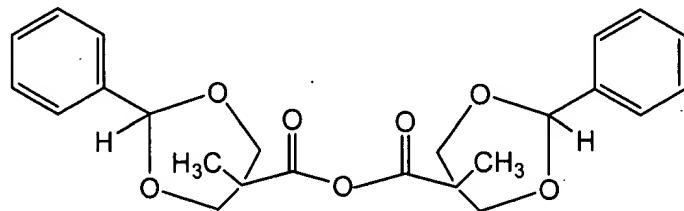
Claim 5. (Withdrawn) The anhydride according to claim 1, prepared by a method consisting essentially of:

(a) combining benzylidene-2,2-bis(methoxy)propanoic acid, N,N'-dicyclohexylcarbodiimide and an organic solvent, thereby forming a reaction mixture in which said anhydride is formed;

(b) filtering said reaction mixture, thereby removing precipitated dicyclohexylurea from said reaction mixture;

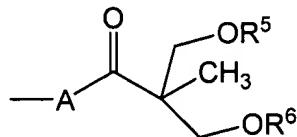
(c) precipitating said anhydride from said reaction mixture by contacting said reaction mixture with a hydrocarbon solvent, thereby producing said anhydride.

Claim 6. (Withdrawn) An anhydride having the structure:



Claim 7. (Withdrawn) The anhydride according to claim 6, wherein said anhydride is a solid and is substantially free of coupling reagent derived side products.

Claim 8. (Currently Amended) A composition of matter consisting essentially of a plurality of dendrimers, wherein said composition of matter comprises dendrimer which is substantially free of urea side products, said dendrimer comprising a subunit having the structure:



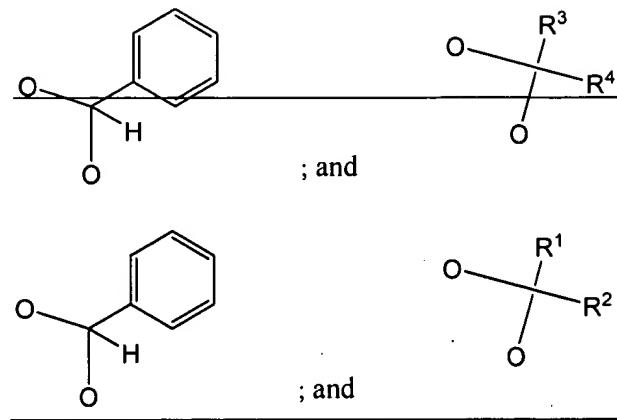
wherein

said composition of matter is free of urea side products

~~A is an active group, which~~ is a member selected from NH, S and O;

~~R5 and R6~~ are members independently selected from the group consisting of H, diagnostic agents, therapeutic agents, analytical agents, and moieties comprising a reactive group

wherein R^5 and R^6 together with the oxygen atoms to which they are attached optionally form a structure which is a member selected from the group consisting of:



wherein

R¹ and R² are members independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl.

Claim 9. (Currently amended) The composition of matter **dendrimer** according to claim 8, wherein A is a component of a polymer.

Claim 10. (Currently amended) The composition of matter **dendrimer** according to claim 9, wherein said polymer is a member selected from the group consisting of nucleic acids, linear poly(alkylene oxides), star poly(alkylene oxides), polysaccharides, poly(amino acids) and poly(hydroxystyrene).

Claim 11. (Currently amended) The composition of matter **dendrimer** according to claim 10, wherein said polysaccharide is a member selected from cyclodextrin, starch, hydroxyethyl starch and dextran.

Claim 12. (Currently amended) The composition of matter **dendrimer** according to claim 10, wherein said poly(amino acid) comprises lysine, tyrosine, serine, cysteine, arginine, histidine and combinations thereof.

Claim 13. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 9, wherein said polymer is a synthetic organic polymer with pendant NH groups, OH groups, SH groups and combinations thereof.

Claim 14. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 13, wherein said synthetic organic polymer is a member selected from poly(vinylphenol), poly(hydroxymethacrylate), poly(N-2-hydroxypropylmethacrylamide), poly(diallylamine), poly(lactic acid) and poly(hydroxymethylcaprolactone), poly(4-hydroxyethylcaprolactone).

Claim 15. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 8, wherein at least one of said R⁵ and R⁶ is a therapeutic agent, and wherein said therapeutic agent is a member selected from the group consisting of antiproliferative agents, proteins, anti-cancer chemotherapeutic agents, antibiotics, antivirals, and antiparasitics.

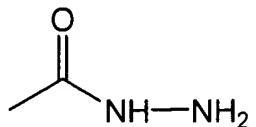
Claim 16. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 8, wherein at least one of said R⁵ and R⁶ is a diagnostic agent, and wherein said diagnostic agent is a member selected from MRI contrast agents, X-ray contrast agents, CT contrast agents, PET contrast agents, ultrasonography contrast agents, fluorescent agents, chromophoric agents and radioisotopes.

Claim 17. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 8, wherein said subunit repeats from 2 to 100 times.

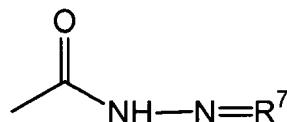
Claim 18. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 17, wherein said subunit repeats from 4 to 50 times.

Claim 19. (Currently amended) The composition of matter ~~dendrimer~~ according to claim 18, wherein said subunit repeats from 8 to 24 times.

Claim 20. (Currently amended) The composition of matter A-dendrimer according to claim 8, wherein at least one of R⁵ and R⁶ has the structure:



Claim 21. (Currently amended) The composition of matter A-dendrimer according to claim 8, wherein at least one of R⁵ and R⁶ has the structure:

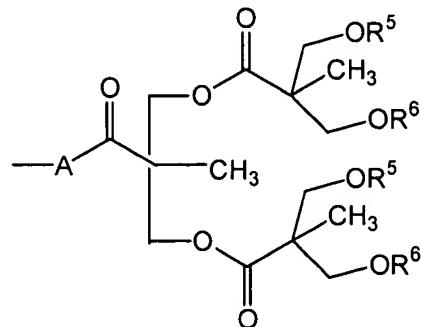


wherein, R⁷ is a member selected from the group consisting of diagnostic agents, therapeutic agents and analytical agents.

Claim 22. (Currently amended) The composition of matter A-dendrimer according to claim 21, wherein R⁷ is a doxorubicin derivative.

Claim 23. (Currently amended) A pharmaceutical formulation comprising the composition of matter a-dendrimer according to claim 8 and a pharmaceutically acceptable carrier.

Claim 24. (Currently amended) A composition of matter consisting essentially of a plurality of dendrimers, wherein said composition of matter comprises dendrimer comprising a subunit having the structure:



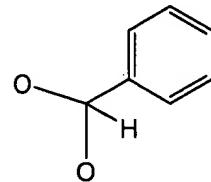
wherein

said composition of matter is free of urea side products

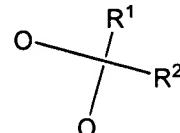
A is a member selected from NH, S and O;

R⁵ and R⁶ are members independently selected from the group consisting of H, diagnostic agents, therapeutic agents, analytical agents, and moieties comprising a reactive group

wherein R⁵ and R⁶ together with the oxygen atoms to which they are attached optionally form a structure which is a member selected from the group consisting of:



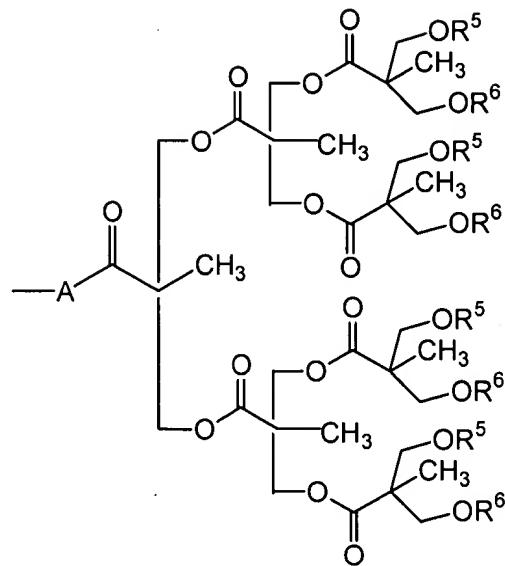
; and



wherein

R¹ and R² are members independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl.

Claim 25. (Currently amended) A composition of matter consisting essentially of a plurality of dendrimers, wherein said composition of matter comprises dendrimer comprising a subunit having the structure:



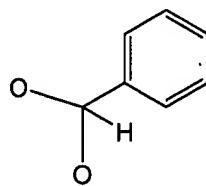
wherein

said composition of matter is free of urea side products

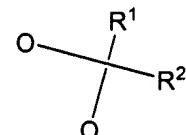
A is a member selected from NH, S and O;

R⁵ and R⁶ are members independently selected from the group consisting of H, diagnostic agents, therapeutic agents, analytical agents, and moieties comprising a reactive group

wherein R⁵ and R⁶ together with the oxygen atoms to which they are attached optionally form a structure which is a member selected from the group consisting of:



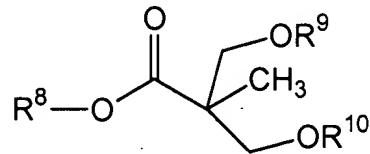
; and



wherein

R¹ and R² are members independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl.

Claim 26. (Withdrawn) A dendrimer having the structure:



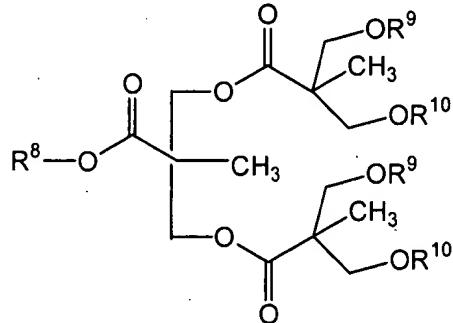
wherein,

R^8 is a nucleic acid; and

R^9 and R^{10} are members independently selected from H and a poly(ethylene oxide) residue.

Claim 27. (Withdrawn) The dendrimer according to claim 26, said dendrimer being substantially free of urea side products.

Claim 28. (Withdrawn) A dendrimer comprising the structure:



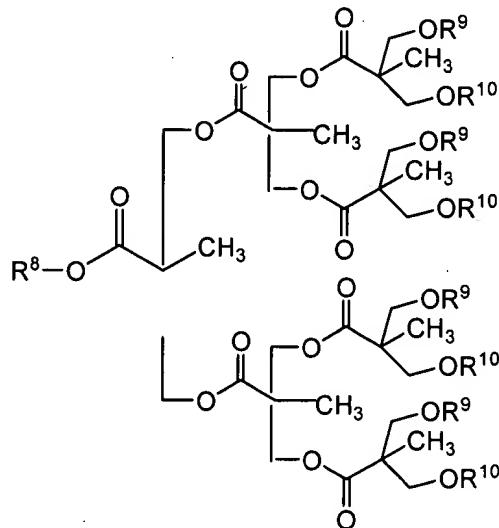
wherein,

R^8 is a nucleic acid; and

R^9 and R^{10} are members independently selected from H and a poly(ethylene oxide) residue.

Claim 29. (Withdrawn) The dendrimer according to claim 28, said dendrimer being substantially free of urea side products.

Claim 30. (Withdrawn) A dendrimer comprising the structure:



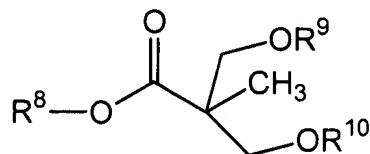
wherein,

R^8 is a nucleic acid; and

R^9 and R^{10} are members independently selected from H and a poly(ethylene oxide) residue.

Claim 31. (Withdrawn) The dendrimer according to claim 30, said dendrimer being substantially free of urea side products.

Claim 32. (Withdrawn) A biological compartment comprising a membrane defining an interior space, said interior space comprising a dendrimer comprising a subunit having the structure:

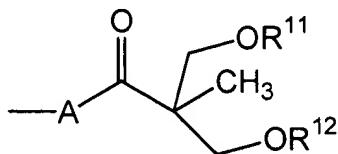


wherein,

R^8 is a nucleic acid; and

R^9 and R^{10} are members independently selected from H and a poly(ethylene oxide) residue.

Claim 33. (Withdrawn) A biological compartment comprising a membrane defining an interior space, said interior space comprising a dendrimer comprising a subunit having the structure:



wherein,

A is a residue of an active group; and
R¹¹ and R¹² are members independently selected from the group consisting of H, therapeutic agents and diagnostic agents.

Claim 34. (Withdrawn) The biological compartment according to claim 33, wherein said therapeutic agent is a member selected from the group consisting of antiproliferative agents, proteins, anti-cancer chemotherapeutic agents, antibiotics, antivirals, nucleic acids, and antiparasitics.

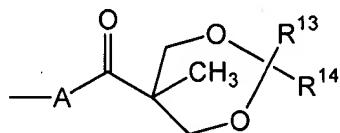
Claim 35. (Withdrawn) The biological compartment according to claim 33, wherein said diagnostic agent is a member selected from MRI contrast agents, X-ray contrast agents, CT contrast agents, PET contrast agents, ultrasonography contrast agents, nucleic acids, fluorescent probes, chromophoric probes and radioisotopes.

Claim 36. (Withdrawn) The biological compartment according to claim 33, wherein A is a residue of a core moiety, and said core moiety is a poly(alkylene oxide) residue.

Claim 37. (Withdrawn) The biological compartment according to claim 36, wherein said core moiety is a poly(ethylene oxide) residue.

Claim 38. (Withdrawn) The biological compartment according to claim 33, wherein said biological compartment is a member selected from cells and organelles.

Claim 39. (Withdrawn) A method of producing a protected first generation dendrimer substantially free of urea side products, said dendrimer comprising a subunit having the structure:

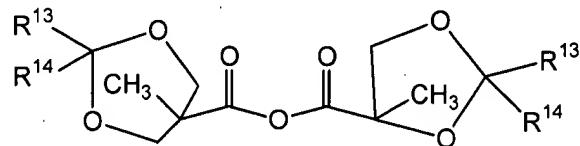


wherein,

A is an active group residue selected from NH, O and S on a core moiety; and R¹³ and R¹⁴ are components of a diol protecting group and are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl, with the proviso that when R¹³ is H, R¹⁴ is other than H;

said method comprising:

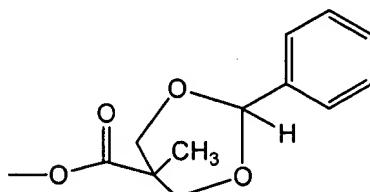
(a) forming a reaction mixture by contacting a core moiety comprising A with an acylating group in an organic solvent, said acylating group having the structure:



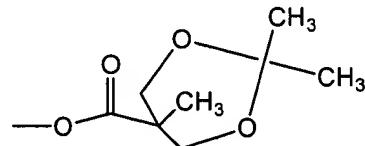
thereby acylating A, forming said dendrimer; and

(b) extracting said reaction mixture with an aqueous solution, thereby removing impurities.

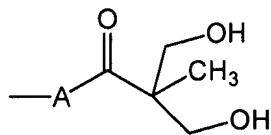
Claim 40. (Withdrawn) The method according to claim 39, wherein said subunit is a member selected from the group consisting of:



; and



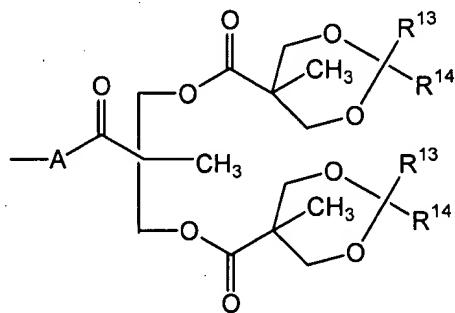
Claim 41. (Withdrawn) The method according to claim 39, further comprising:
(c) removing said diol protecting group, thereby forming a first generation dendrimer comprising a subunit having the structure:



Claim 42. (Withdrawn) A dendrimer prepared by the method according to claim 41.

Claim 43. (Withdrawn) The dendrimer according to claim 42, wherein said dendrimer is a solid.

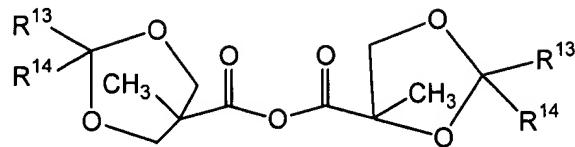
Claim 44. (Withdrawn) A method of producing a protected second generation dendrimer substantially free of urea side products, said dendrimer comprising a subunit having the structure:



wherein,

A is an active group selected from NH, O and S on a core moiety; and R¹³ and R¹⁴ are components of a diol protecting group and are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl, with the proviso that when R¹³ is H, R¹⁴ is other than H; said method comprising:

(a) contacting said first generation dendrimer according to claim 41 with an acylating group having the structure:

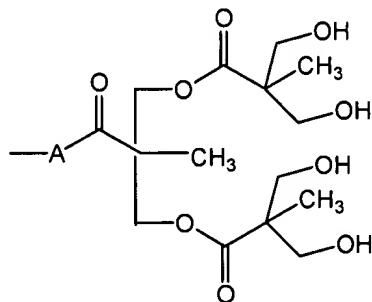


thereby acylating A, forming said dendrimer; and

(b) extracting said reaction mixture with an aqueous solution, thereby removing impurities.

Claim 45. (Withdrawn) The method according to claim 44, further comprising:

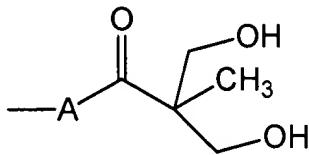
(c) removing said diol protecting group, thereby forming a second generation dendrimer comprising a subunit having the structure:



Claim 46. (Withdrawn) A dendrimer prepared by the method according to claim 44.

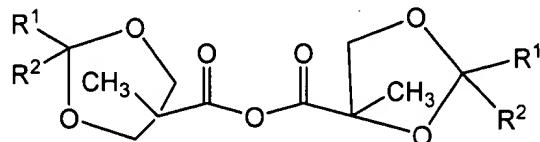
Claim 47. (Withdrawn) The dendrimer according to claim 46, wherein said dendrimer is a solid.

Claim 48. (Withdrawn) A method of enhancing water solubility of an agent, said method comprising forming a conjugate between said agent and a dendrimer comprising a subunit having the structure:



Claim 49. (New) The composition of matter of claim 8, wherein said dendrimers are produced by a process comprising:

(a) forming a reaction mixture by contacting a core moiety comprising A with an acylating group in an organic solvent, said acylating group having the structure:



thereby acylating A, forming said dendrimer; and

(b) extracting said reaction mixture with an aqueous solution, thereby removing impurities.

Claim 50. (New) The composition of matter according to claim 49, wherein A is a component of a polymer.

Claim 51. (New) The composition of matter according to claim 50, wherein said polymer is a member selected from the group consisting of nucleic acids, linear poly(alkylene oxides), star poly(alkylene oxides), polysaccharides, poly(amino acids) and poly(hydroxystyrene).

Claim 52. (New) The composition of matter according to claim 49, wherein at least one of said R⁵ and R⁶ is a therapeutic agent, and wherein said therapeutic agent is a member selected from the group consisting of antiproliferative agents, proteins, anti-cancer chemotherapeutic agents, antibiotics, antivirals, and antiparasitics.

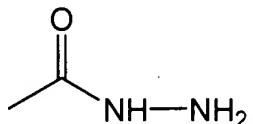
Claim 53. (New) The composition of matter according to claim 49, wherein at least one of said R⁵ and R⁶ is a diagnostic agent, and wherein said diagnostic agent is a member selected from MRI contrast agents, X-ray contrast agents, CT contrast agents, PET contrast agents, ultrasonography contrast agents, fluorescent agents, chromophoric agents and radioisotopes.

Claim 54. (New) The composition of matter according to claim 49, wherein said subunit repeats from 2 to 100 times.

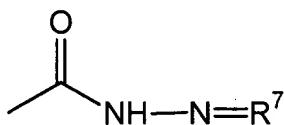
Claim 55. (New) The composition of matter according to claim 54, wherein said subunit repeats from 4 to 50 times.

Claim 56. (New) The composition of matter according to claim 55, wherein said subunit repeats from 8 to 24 times.

Claim 57. (New) The composition of matter according to claim 49, wherein at least one of R⁵ and R⁶ has the structure:



Claim 58. (New) The composition of matter according to claim 49, wherein at least one of R⁵ and R⁶ has the structure:



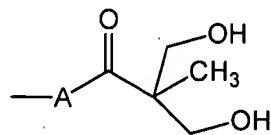
wherein, R⁷ is a member selected from the group consisting of diagnostic agents, therapeutic agents and analytical agents.

Claim 59. (New) The composition of matter according to claim 58, wherein R⁷ is a doxorubicin derivative.

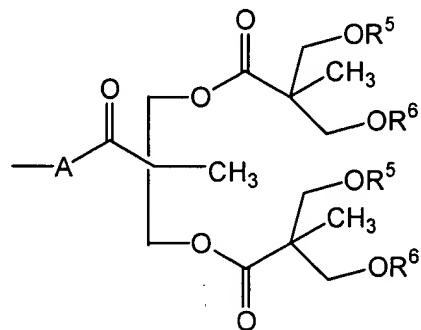
Claim 60. (New) A pharmaceutical formulation comprising the composition of matter according to claim 49 and a pharmaceutically acceptable carrier.

Claim 61. (New) The composition of matter according to claim 49, produced by a process which further comprises:

(c) removing said diol protecting group, thereby forming a first generation dendrimer comprising a subunit having the structure:



Claim 62. (New) A composition of matter consisting essentially of a plurality of dendrimers, wherein said composition of matter comprises a subunit having the structure:



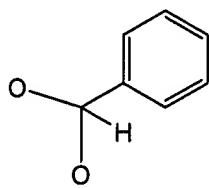
wherein

said composition of matter is free of urea side products

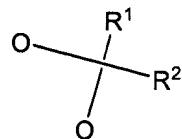
A is a member selected from NH, S and O;

R⁵ and R⁶ are members independently selected from the group consisting of H, diagnostic agents, therapeutic agents, analytical agents, and moieties comprising a reactive group

wherein R⁵ and R⁶ together with the oxygen atoms to which they are attached optionally form a structure which is a member selected from the group consisting of:



; and

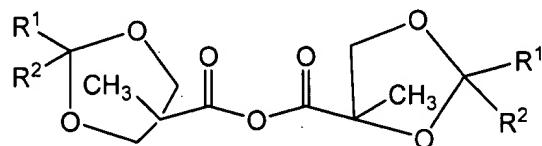


wherein

R^1 and R^2 are members independently selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl;

wherein said dendrimers are produced by a process comprising:

(a) contacting said first generation dendrimer according to claim 61 with an acylating group having the structure:



thereby acylating A, forming said dendrimer; and

(b) extracting said reaction mixture with an aqueous solution, thereby removing impurities.

Claim 63. (New) The composition of matter according to claim 62, produced by a process which further comprises:

(c) removing said diol protecting group, thereby forming a second generation dendrimer comprising a subunit having the structure:

